

FEDERAL HIGHWAY ADMINISTRATION

This table is an updated version of the one included in the FHWA  
Memorandum "Crash Tested Work Zone Traffic Control Devices"

Dated August 28, 1998

This list was last updated on May 23, 2000

ACCEPTABLE CRASHWORTHY CATEGORY 2 HARDWARE FOR WORK ZONES

Acceptance Letter # And Date	Manufacturer, Developer, Agency, etc.	Device(s)
FHWA wz-1 6-19-97	WLI Industries	SafetyCade Vertical, or SafetyCade Barricade Type II, Plastic, with Warning Light AcceptedTL-3
FHWA wz-2 1-28-98	Impact Recovery Systems, Inc.	Vertical Panel w/driveable base, Portable Single and Double Vertical Panels. Fixed Single-and Double Vertical Panels Fixed Chevron sign Assemblies, Accepted-
FHWA WZ-2A 6-16-98		Addition of Opposing Traffic Lane Divider, Portable Chevron, and Vertical Panels, with lights.
FHWA WZ-2B 3-3-2000		Specify range of heights for vertical panels 945mm, 1220mm, and 1525mm as acceptable
FHWA WZ-3	Various	FHWA Memo of 8-28-98. It finds the following tested devices acceptable for use on the NHS. See Attachment B, Table 2 for test data, and the drawings after the tables for illustrations of the crashworthy devices.
	TTI for Texas D.O.T.	TTI tested numerous work zone traffic control devices. All the devices listed here were successfully tested in these two crash test programs and <del>not</del> TL-3 criteria. The attached drawings illustrate the tested hardware but do not necessarily provide enough information to fabricate the device. The crash testing is fully documented in the two reports which should be consulted for additional details of the hardware.
	(TTI Report Note 1)	1) Spring Mounted Sian Support with Plastic/Fabric Sign (see Figure 11.1, "Figure 21")
		2) Portable Sign Support with Plastic/Fabric Sign, with flags added on top (see Figure 11.2, "Figure 29")
		3) D-4 Sign Trailer with Wooden sign Panel (see Figure 11.3, "Figure 33")
		4) Skid Mounted Sign Support with Plywood Sign Panel (see Figure 11.4, "Figure 37")
		5) Perforated Steel Tube Type III Barricade with Plastic Panels (see Figure 11.5 "Figure 41" & "Figure 45")
		6) Perforated Steel Tube Type III Barricade with 1x8 Wood Panels (see Figure 11.6 "Figure 42")
		7) Schematic of Plastic Type III Barricade by Tex-Mex Barricade (see Figure II.7 "Figure 57") this hardware may no longer be in production. <sup>7</sup>
		8) Hollow Core Recycled Plastic Type III Barricade <sup>4</sup> (see Figure II.8 "Figure 61")
	TTI Report, Note 2	1) Type III Hollow Core Plastic Barricade (see Figure II.9 "Figure 1.") (Vertical braces were added to support the panels prior to putting them in place on the barricade.)
		2) Type III Perforated Tubing Barricade (3.7 m) (see Figure 11.10 "Figure 2.") (Vertical braces added, as noted above. Base connection detail also modified. Acceptable with 1x8 wood or hollow core plastic rails.)

		3) Type III perforated Tubing Barricade (1.2 m (see Figure II.11 "Figure 3.") (Vertical braces added, a noted above. Base connection detail also modified. Acceptable with 1x8 wood or hollow core plastic rails.)
		4) HwyCom Fiberglass Type III Barricade with plastic panels (see Figure II.12 "Figure 4.") (Round 76 mm diameter fiberglass pipes were used as the supports.)
		5) Price Fiberglass Type III Barricade (see Figure II.13 "Figure 5.") (89 mm x-32 mm x 6.4 mm fiberglass u-channel supports were used.)
		6) Spring-loaded Portable Sign Support (see Figure II.14 "Figure 7") (Tested with mounting height of 610-mm.)
		7) Ground-mounted Type III barricade (see Figure II.15 "Figure 8.") (Steel supports ground mounted in Poz-Loc sockets. Also acceptable with fiberglass supports in a "Universal" anchor, and with perf. square steel tubes in anchors.)
		8) Vertical Panel Assembly (three shown in Figure II.16 "Figure 11.") (Plywood panels mounted on wood, steel angle, and plastic c-channel posts.)
		9) Skid-mounted Sign Support. (See Figure II.17 "Figure 10.") (No modifications, but was tested end-on.)
wz-3 Continued	Flasher Handling	Air Spill Barricade. Flexible vertical panel fixed to a 44.5-mm wide, 1170-mm tall fiberglass support. support is fixed to a low-profile rubber base. (See Figure II.18)
	Services & Materials Co.	VB-RFL. Vertical panel acceptable as a Category 2 device without lights. Tested with lights, but no details of the light battery are available. (More information is needed before this vertical panel can be found acceptable with lights.)
	Nevada DOT	Breakaway Type III Barricade (PVC Pipe, cable or rope through all pipes). See FHWA Implementation Package IP 75-6 "Breakaway Barricades". See Figures II.19 and II.20 (Drawings A-8 & A-9) of the final designs. WARNING: The New Jersey PVC Barricade was tested in October 1999 and failed when a horizontal element penetrated the windshield in the 90 degree test.
	Wyoming DOT	Wood Type III Barricade (150-mm square wood horizontals and uprights, 3000-mm wide panels. See AASHTO Roadside Design Guide Figure 9.18. Mass of tested unit was 150 kg, not 725 as shown.)
wz-4 5-29-98	Woudenberg Enterprises	MSi Durastem Vertical Panel, with lightweight warning light attached.
wz-5 7-23-98	Flasher Handling	Air Spill Barricade vertical panel, Opposing Traffic Lane Divider, Breakaway perforated square steel tube frame barricade
WZ-6 11-23-98 (Inadvertent ly issued as wz-5)	Bent Manufacturing	Type II plywood or plastic panel barricade*; Universal Plastic panel barricade*; T-Top vertical panel*; Superdome plastic drum*; Type III Barricade*; Masterflex Post (a vertical panel); T-Top Delineator* [* these devices may have a lightweight warning light attached]
wz-7 11-2-98	Eastern Metal	X-550 and C-102 Portable Sign Stands with plastic/fabric signs.
wz-8 2-5-99	Off the Wall	Multi-Barrier MB2 hollow plastic barricade

wz-9 1-12-99	Safety Quest	Roadguard channelizer by Traffic Safety Devices, Inc..
wz-10	Reserved	
wz-11 2-16-99	Recycled Plastic Products	Hollow Core Recycled Plastic Barricades
wz-12 5-28-99	Flasher Handling	Air Flow Roll Up Sign Unit, Bantam II portable sign, Polypropylene sign Panels on Drums
wz-13 6-3-99	Eastern Metal/ USA Sign	Melba Barricade: Large Vertical Panel Assemblies, Type I Barricades, Type II Barricades Eastern Metal: Super Flex Compact Sign Stands, Interstate Sign Stands, Compact Non-Flexing Aluminum Sign Stands
WZ-14 5-28-99	Plasticade Products	Fibercade, Plasticade, and Plasticade Sign Stand
wz-15 6-30-99	WLI Industries	Safety Cade Extended vertical panel with lightweight warning light
WZ-16 6-4-99	Bent Manufacturing	ULTRA vertical panel with lightweight warning light
WZ-17 7-19-99	Dicke Tool Co.	Type I plastic Barricades with NightFlasher warning light 1500 Series Drum with NightFlasher warning light 12 models of Portable Sign Stands
WZ-18 7-20-99	PIBH	Pennsylvania Institute for the Blind and Handicapped Portable Sign Stand with Roll Up sign
wz-19 7-26-99		Trailer-mounted portable sign stand with aluminum sign
WZ-20 10-28-99	MD1	Compact Portable Sign Stands with Roll Up Signs
wz-21 9-26-99	Korman Signs	Portable Sign Stands with Roll Up signs
wz-22 10-19-99	Yodock Wall	Yodock barricade "2001m Barrier with T3m Apparatus" including 1.9 kg warning lights
WZ-23 10-26-99	WLI Industries	High Level Work Zone Sign System with Plasticore Sign Substrate
WZ-24 12-28-99	Traffix Devices	Various cones, tubes, drums, barricades, portable sign stands with roll-up signs
WZ-25 PENDING	Dicke Tool	Portable Sign Stands, Phase III and Phase IV
WZ-26 12-29-99	Work Area Prot.	B-400 Lighted Drum
WZ-27 Under Review	Roadmarker	Plastic Barricade
WZ-28 3-3-2000	MDI	Portable Sign Stands
wz-29 2-17-2000	Korman Signs	Various Portable Signs Stands: Aluminum, Alpollic, Roll Up
wz-30 4-10-2000	Sign Up Corp.	"Compact" Portable Sign Stands with Roll-Up Signs.
wz-31 3-21-2000	Cantel Barricade	Cantel of Medford Type III barricades as designed by Bent Mfg.
WZ-32 2-25-2000	Pacific Safety Supply	Portable Sign Stands with Roll Up Signs
wz-33 Written	3D Traffic Works	Barricade
wz-34 3-23-2000	Yodock Wall	Yodock barricade "2001 Barrier with T3mApparatus"

WZ-35 3-23-2000	Service Signing	Vertical Panel
WZ-36 To Typing May 23	Protection Services	Type I and II barricades
WZ-37 Under Review	Lang Products	Portable Sign Stands with Roll up signs
WZ-38 Under Review	Flex 0 Lite	Barricades, Sign Stands
wz-39 Under Review	Davidson Plastics	Type III Barricades
wz-40 Under Review	FHWA / TTI	Pooled-Fund Study Devices: Perf. Square Tube Type III with sign,
wz-41 Under Review	WLI Industr.	Type I and Type II barricades with Toughlite 2000 Lites.
wz-42 Under Review	cogent Enterprises	Cordonator Channelizer
Below is a list of the re		
		Lightweight LED warning light BCD-3V Switchable
unassigned	Penn Dot	Type III Barricade 3-28-00
unassigned	Sign Up	Portable Sign Stands 3-28-00
unassigned	3 D Traffic	Barricades 4-12-00
unassigned	EmpcoLite	Bob's Barricades 3-17-00 4-14-00 Traffic Control of Florida 5-12-00 need two letters
unassigned	Traffix	WZ Traffic control devices 4-20-00
unassigned	Dicke Tool	Portable sign stands 5-17-00
unassigned		

Notes:

1. Evaluation of Work Zone Barricades and Temporary Sian Supports, Mak, Bligh, and Menges Report No. 5388-1 Sponsored by the Texas DOT.
2. Evaluation of Work Zone Barricades, Mak, Bligh, and Menges Report No. TX-97/3910- S Sponsored by the Texas DOT.
3. The tested portable sign stands were supplied by Traffix Devices Inc. and MDI-Windmaster. Roll-up sign-sheeting was supplied by Reflexite. Plastic barricade panels were also supplied by Traffix. The acceptable portable sign stands all featured horizontal cross braces of lightweight fiberglass or plastic elements. Recent testing of some portable sign stands at 90 degrees shows that horizontal cross braces of tubular metal penetrate the windshield and ~~are not~~ considered crashworthy without additional testing. Portable sign stands with horizontal metal tubes (or other inflexible elements) supporting flexible signs may not be used on the NHS in a position where they could be struck at right angles.
4. Horizontal and upright components of the hollow core recycled plastic barricades were supplied by Recycled Plastic Products, Inc.

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